Dimensions of the Planets and Satellites.

In *Popular Astronomy* for October, 1897, Professor E. E. Barnard gives the results of "A Micrometrical Determination of the Dimensions of the Planets and Satellites of the Solar System, Made with the 36-inch Refractor of the Lick Observatory."

Below are given Professor Barnard's results in English miles, and for comparison the values given in Young's *General Astronomy* (second issue, 1889).

	Barnard.	Young's General Astronomy.
	Miles.	Miles.
*Mercury**	2,765	3,030
Venus	7,826	7,700
Mars Eq.	4,352	4,230 (mean diam.)
Mars Pol.	4,312	
Ceres	485	No previous micrometric measures.
Pallas	304	
Juno	118	
Vesta	243	
Jupiter Eq.	90,190	88,200
Jupiter Pol.	84,570	83,000
Jupiter's Satellites I	2,452	2,400+
Jupiter's Satellites II	2,045	2,100+
Jupiter's Satellites III	3,558	3,600
Jupiter's Satellites IV	3,345	3,000
Saturn Eq.	76,470	75,000±
Saturn Pol.	69,780	68,000±
Saturn's Rings: Outer diameter, outer ring	172,610	168,000
Saturn's Rings: Inner " " "	150,480	148,000
Saturn's Rings: Center Cassini Division	148,260	. . .
Saturn's Rings: Outer diameter, inner ring	145,990	144,800
Saturn's Rings: Inner " " "	110,070	111,800
Saturn's Rings: " " crape ring	88,190	91,800±
Saturn's Rings: Width Cassini Division	2,220	1 600±
Saturn's Rings: Diameter satellite *Titan*	2,720	3,000 or 4,000 (Probably.)
Uranus, mean diameter	34,900	31,900
Neptune, " "	32,900	34,800

R. G. Aitken.

Changes in the U. S. Coast and Geodetic Survey.

Mr. Henry S. Pritchett, Ph. D. (Munich), professor of physics and astronomy in Washington University, St. Louis, has been appointed by the President, Superintendent of the United States Coast and Geodetic Survey in the place of General

* Professor Barnard states that his measures of *Mercury* were made with the 12-inch telescope at the transits of 1891 and 1894.

W. W. DUFFIELD, resigned. Professor PRITCHETT was Assistant Astronomer at the Naval Observatory, Washington, from 1878 to 1880. He has engaged in work for the survey in China and Japan, as well as in the United States.

THE TELEGRAPHIC LONGITUDE NET OF THE UNITED STATES.

In the *Astronomical Journal*, No. 412, Professor CHARLES A. SCHOTT, of the United States Coast and Geodetic Survey, publishes a brief summary of the longitude work done by the Survey between 1866 and 1896. From this paper, the following extracts are taken:—

In 1851, S. C. WALKER, Assistant, reported the following values for the longitude of the Cambridge Observatory:—

	West of Greenwich.		
	h	m	s
From Moon culminations,	4	44	28.42
From eclipses, transits, and occultations,	4	44	29.64
By chronometric expeditions,	4	44	30.10

In the autumn of 1845, Superintendent BACHE instructed Assistant WALKER to devise practical means for the employment of the electric telegraph (publicly tested by MORSE in May, 1844) for longitude work. With the co-operation of the United States Naval Observatory, the cities of Washington and Philadelphia were connected on October 10, 1846, and their difference of longitude was found to be $7^m\ 34^s.3$. After Professor WALKER'S retirement in 1852, Dr. B. A. GOULD took charge of the longitude work of the Survey up to 1867; the Coast Survey Report of that year contains his report "On the Longitude between America and Europe from Signals through the Atlantic Cable." The resulting longitude of the Cambridge Observatory was $4^h\ 44^m\ 30^s.85$.

Other cable determinations were secured by the Coast Survey in 1870 and 1872, but the latest determination, in 1892, is due to the co-operation of the McGill College Observatory at Montreal, Canada, with the Greenwich Observatory.

The final value for the longitude of the Harvard Observatory at Cambridge, as adjusted in June, 1897, is,—

$$4^h\ 44^m\ 31^s.046 \pm 0^s.048.$$

The longitude net as developed during thirty years, including some European stations, is composed of forty-five stations, connected by seventy-two links. Practically, three lines cross the continent, one near our nothern boundary, one near the southern,